Tomorrow's Jobs

Making informed career decisions requires reliable information about opportunities in the future. Opportunities result from the relationships between the population, labor force, and the demand for goods and services.

Population ultimately limits the size of the labor force—individuals working or looking for work—which constrains how much can be produced. Demand for various goods and services determines employment in the industries providing them. Occupational employment opportunities, in turn, result from skills needed within specific industries. Opportunities for computer engineers and other computer-related occupations, for example, have surged in response to rapid growth in demand for computer services.

Examining the past and projecting changes in these relationships are the foundation of the Occupational Outlook Program. This chapter presents highlights of Bureau of Labor Statistics projections of the labor force and occupational and industry employment that can help guide your career plans. Sources of detailed information about the projections appear on the preceding page.

Population

Population trends affect employment opportunities in a number of ways. Changes in population influence the demand for goods and services. For example, a growing and aging population has increased the demand for health services. Equally important, population changes produce corresponding changes in the size and demographic composition of the labor force.

The U.S. population is expected to increase 23 million over the 1998-2008 period, at roughly the same rate of growth as during the 1988-98 period but much slower than over the 1978-88 period (chart 1). Continued growth will mean more consumers of goods and services, spurring demand for workers in a wide range of occupations and industries. The effects of population growth in various occupations will differ. The differences are partially accounted for by the age distribution of the future population.

The youth population, ages 16 to 24, is expected to increase as a share of the population for the first time since the 1970s. Overall, the 25 to 54 age group is expected to decrease as a share of the population. Within this group, however, the 45 and over age group will grow as a percent of the population. The 55 and over age group will grow the fastest, increasing from 26.6 to 30 percent over the 1998-2008 period.

Minorities and immigrants will constitute a larger share of the U.S. population in 2008 than they do today. Substantial increases in the Hispanic, black, and Asian populations are forecasted, reflecting high birth rates as well as a continued flow of immigrants.

Labor Force

Population is the single most important factor in determining the size and composition of the labor force—comprised of people who are either working or looking for work. The civilian labor force is expected to increase by 17 million, or 12 percent, to 154.6 million over the 1998-2008 period. This increase is almost the same as the 13 percent increase during the 1988-98 period but much less than the 19 percent increase during the 1978-88 period.

The U.S. workforce will become more diverse by 2008. White, non-Hispanic persons will make up a decreasing share of the labor force, from 73.9 to 70.7 percent. Hispanics, non-Hispanic blacks, and Asians and other racial groups are projected to comprise an increasing share of the labor force

Chart 1. **Population and labor force growth – 1978-88, 1988-98, and projected 1998-2008**

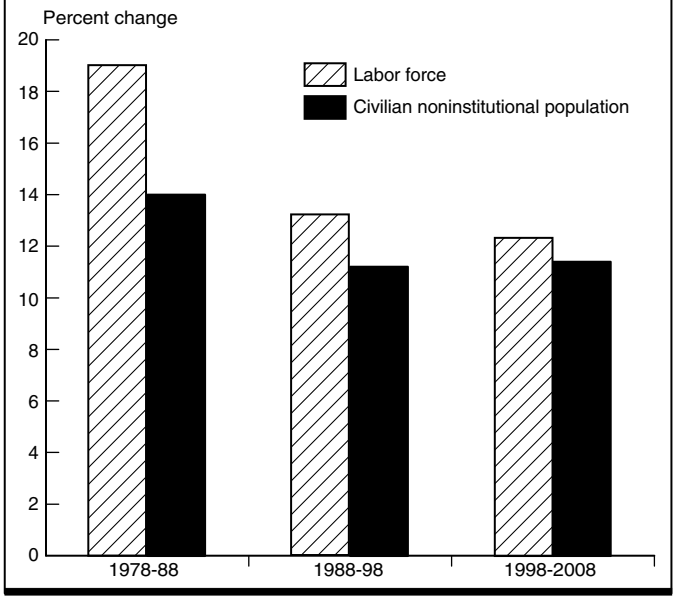
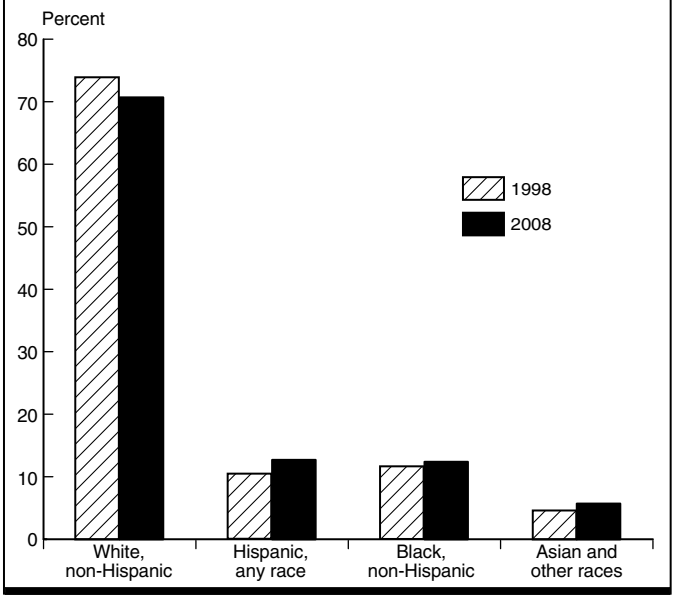


Chart 2. **Percent of labor force by race and ethnic origin, 1998 and projected 2008**



by 2008—10.4 to 12.7 percent, 11.6 to 12.4 percent, and 4.6 to 5.7 percent, respectively (chart 2). However, despite relatively slow growth, white non-Hispanics will have the largest numerical growth in the labor force between 1998 and 2008, reflecting the large size of this group.

The number of men and women in the labor force will grow, but the number of men will grow at a slower rate than in the past. Between 1998 and 2008, men's share of the labor force is expected to decrease from 53.7 to 52.5 percent while women's share is expected to increase from 46.3 to 47.5 percent.

The youth labor force, ages 16 to 24, is expected to slightly increase its share of the labor force to 16 percent in 2008, growing more rapidly than the overall labor force for the first time in 25 years. The large group of workers 25 to 44 years old, who comprised 51 percent of the labor force in 1998, is projected to decline to 44 percent of the labor force by 2008. Workers 45 and older, on the other hand, are projected to increase from 33 to 40 percent of the labor force between 1998 and 2008, due to the aging baby-boom generation (chart 3).

Education and Training

Projected job growth varies widely by education and training requirements. Five out of the six education and training categories projected to have the highest percent change require at least a bachelor's degree (chart 4). These five categories will account for one-third of all employment growth over the 1998-2008 period. Employment in occupations that do not require postsecondary education are projected to grow by about 12 percent while occupations that require at least a bachelor's degree are projected to grow by almost 22 percent, compared to 14 percent for all occupations combined.

Education is essential in getting a high paying job. In fact, all but a few of the 50 highest paying occupations require a college degree. However, a number of occupations—for example, blue-collar worker supervisors, electricians, and police patrol officers—do not require a college degree, yet offer higher than average earnings.

Chart 3. **Percent of labor force by age group, 1998 and projected 2008**

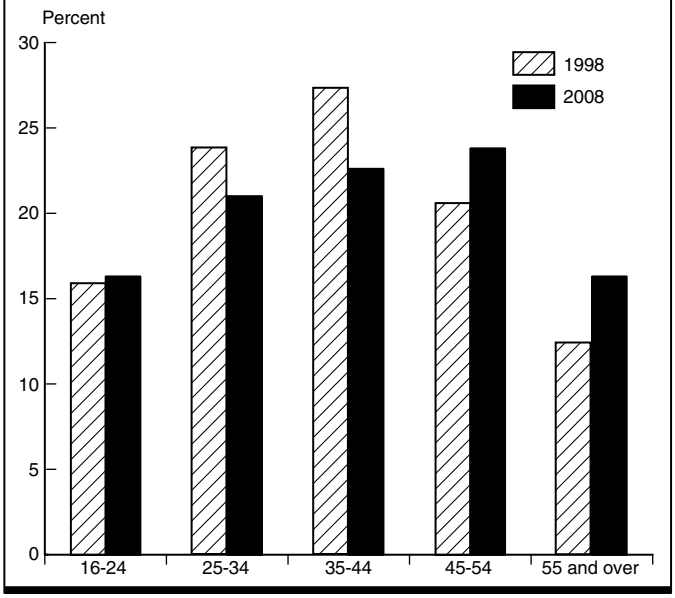
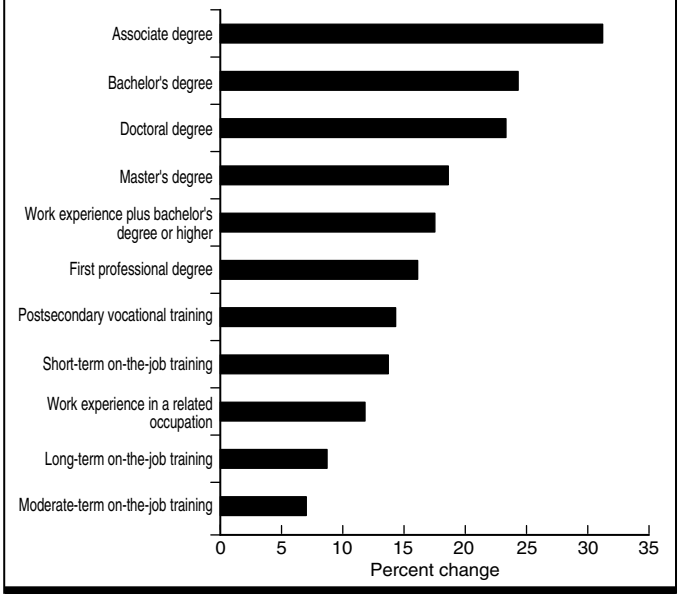


Chart 4. **Growth rates by most significant source of education and training, projected 1998-2008**



Employment

Total employment is expected to increase from 141 million in 1998 to 161 million in 2008, or by 14 percent. The 20 million jobs that will be added by 2008 will not be evenly distributed across major industrial and occupational groups. Changes in consumer demands, technology, and many other factors will contribute to the continually changing employment structure in the U.S. economy.

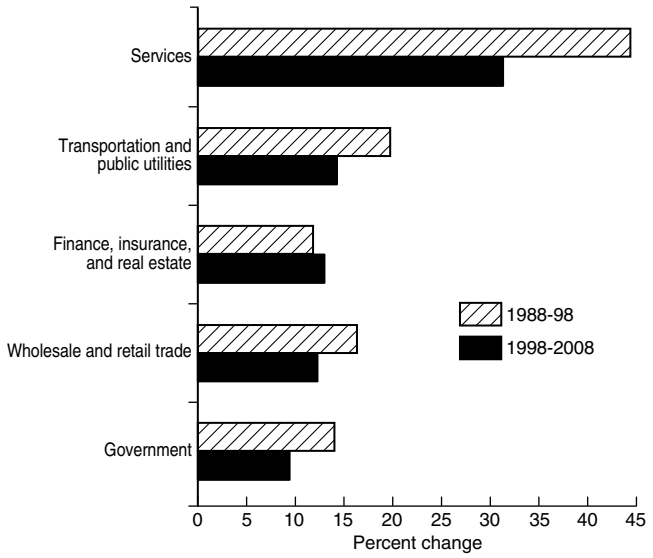
The following two sections examine projected employment change from both industrial and occupational perspectives. The industrial profile is discussed in terms of primary wage and salary employment; primary employment excludes secondary jobs for those who hold multiple jobs. The exception is agriculture, which includes self-employed and unpaid family workers in addition to salaried workers.

The occupational profile is viewed in terms of total employment—including primary and secondary jobs for wage and salary, self-employed, and unpaid family workers. Of the nearly 141 million jobs in the U.S. economy in 1998, wage and salary workers accounted for over 128 million; self-employed workers accounted for over 12 million; and unpaid family workers accounted for about 200,000. Of the nearly 141 million total jobs, secondary employment accounted for over 2 million. Self-employed workers held 9 out of 10 secondary jobs; wage and salary workers held most of the remainder.

Industry

The long-term shift from goods-producing to service-producing employment is expected to continue (chart 5). Service-producing industries—including finance, insurance, and real estate; government; services; transportation and public utilities; and wholesale and retail trade—are expected to account for approximately 19.1 million of the 19.5 million new wage and salary jobs generated over the 1998-2008 period. The services and retail trade industry sectors will account for nearly three-fourths of total wage and salary job growth, a continuation of the employment growth pattern of the 1988-98 period.

Chart 5. **Percent change in wage and salary employment, service-producing industries, 1988-98 and projected 1998-2008**



Services. The largest and fastest growing major industry group—services—is expected to add 11.8 million new jobs by 2008. Nearly three-fourths of this projected job growth is concentrated in three sectors of services—business, health, and professional and miscellaneous services. Business services—including personnel supply and computer and data processing services, among other detailed industries—will add 4.6 million jobs. Health services—including home health care services and nursing and personal care facilities, among other detailed industries—will add 2.8 million jobs. Professional and miscellaneous services—including management and public relations and research and testing services, among other detailed industries—will add 1.1 million jobs. Employment in computer and data processing services is projected to grow 117 percent between 1998 and 2008, ranking as the fastest growing industry.

Transportation and public utilities. Overall employment is expected to increase by 674,000 jobs, or 14 percent. Employment in the transportation sector is expected to increase by 16 percent, from 4.3 to 5 million jobs. Air, truck, and local and interurban passenger transportation will account for 32, 30, and 23 percent, respectively, of the job growth in this industry. Employment in communications is expected to grow about as fast as average through 2008, adding about 300,000 new jobs. Employment in utilities is expected to decline by about 4 percent. However, faster than average growth is expected in water supply and sanitary services with the creation of about 67,000 jobs.

Finance, insurance, and real estate. Employment is expected to increase by 13 percent—adding 960,000 jobs to the 1998 level of 7.4 million. Demand for financial services is expected to continue. The security and commodity brokers segment of the industry is expected to grow by 40 percent, creating about 255,000 jobs. Nondepository institutions will add 193,000 jobs and have a growth rate of 29 percent, fueled by increased demand for nonbank corporations that offer banklike services. Continued demand for real estate will create 179,000 new jobs, at a growth rate of about 12 percent. The insurance carriers segment is expected to grow by nearly 10 percent—adding 154,000 jobs.

Wholesale and retail trade. Employment is expected to increase by 7 and 14 percent, respectively, growing from 6.8 to 7.3 million in wholesale trade and from 22.3 to 25.4 million in retail trade. With the addition of 1.3 million jobs, the eating and drinking places segment of the retail industry is projected to have the largest numerical increase in employment.

Government. Between 1998 and 2008, government employment, including public education and public hospitals, is expected to increase by over 9 percent, from 19.8 to 21.7 million jobs. State and local government, particularly education, will drive employment growth. Federal Government employment is expected to decline by 165,000 jobs.

Employment in the goods-producing industries has been relatively stagnant since the early 1980s. Overall, this sector is expected to grow by 1.6 percent over the 1998-2008 period. Although employment growth is expected to show little change, projected growth within the sector varies considerably (chart 6).

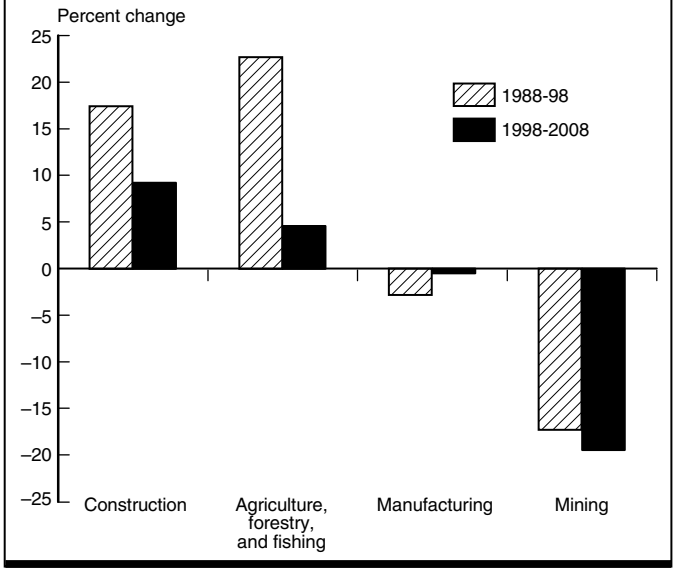
Construction. Construction is expected to increase by 9 percent from 5.9 to 6.5 million. Demand for new housing and an increase in road, bridge, and tunnel construction will account for the bulk of employment growth in this industry.

Agriculture, forestry, and fishing. Overall employment in agriculture, forestry, and fishing is expected to increase by nearly 5 percent from 2.2 to 2.3 million. Strong growth in agricultural services will more than offset an expected continued decline in crops and livestock and livestock products.

Manufacturing. Manufacturing employment is expected to decline by less than 1 percent from the 1998 level of 18.8 million. The projected loss of jobs reflects improved production methods, advances in technology, and increased trade.

Mining. Mining employment is expected to decrease by 19 percent from 590,000 to 475,000. The continued decline is partly due to laborsaving machinery and increased imports.

Chart 6. **Percent change in wage and salary employment, goods-producing industries, 1988-98 and projected 1998-2008**



Occupation

Expansion of the service-producing sector is expected to continue, creating demand for many occupations. However, projected job growth varies among major occupational groups (chart 7).

Professional specialty. Professional specialty occupations comprise the fastest growing group. Over the 1998-2008 period, a 27-percent increase in the number of new professional specialty jobs is projected, an increase of 5.3 million. Professional specialty workers perform a wide variety of duties, and are employed throughout private industry and government. Computer systems analysts, computer engineers and scientists, special education teachers, and social and recreation workers are among the fastest growing occupations in this group.

Technicians and related support. Employment of technicians and related support occupations is projected to grow by 22 percent, adding 1.1 million jobs by 2008. Workers in this group provide technical assistance to engineers, scientists, physicians, and other professional specialty workers, and operate and program technical equipment. Over half of the projected employment growth among technicians—about 616,000 jobs—is among health technicians and technologists. Considerable growth is also expected among computer programmers and paralegals and legal assistants.

Service. Employment in service occupations is projected to increase by 3.9 million, or 17 percent, by 2008, the second largest numerical gain among the major occupational groups. Over half of the new jobs are in the rapidly growing services industry division, led by business services, health services, and social services.

Executive, administrative, and managerial. Executive, administrative, and managerial occupations are projected to increase by 16 percent, or 2.4 million, over the 1998-2008 period. Workers in this group establish policies, make plans, determine staffing requirements, and direct the activities of businesses, government agencies, and other organizations. The services industry division is expected to account for half of the job growth, adding 1.2 million jobs. The number of self-employed executive, administrative, and managerial workers is expected to increase by 361,000—more than any other major occupational group—to almost 2.5 million by 2008.

Chart 7. **Percent change in total employment by major occupational group, projected 1998-2008**

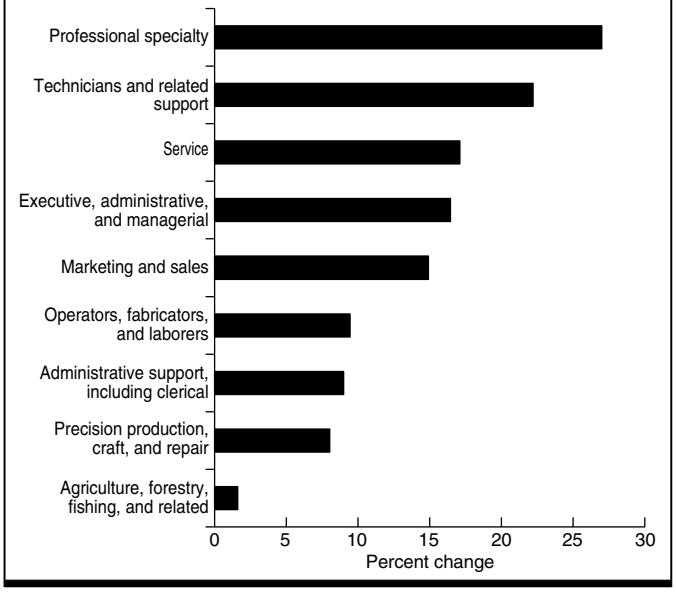
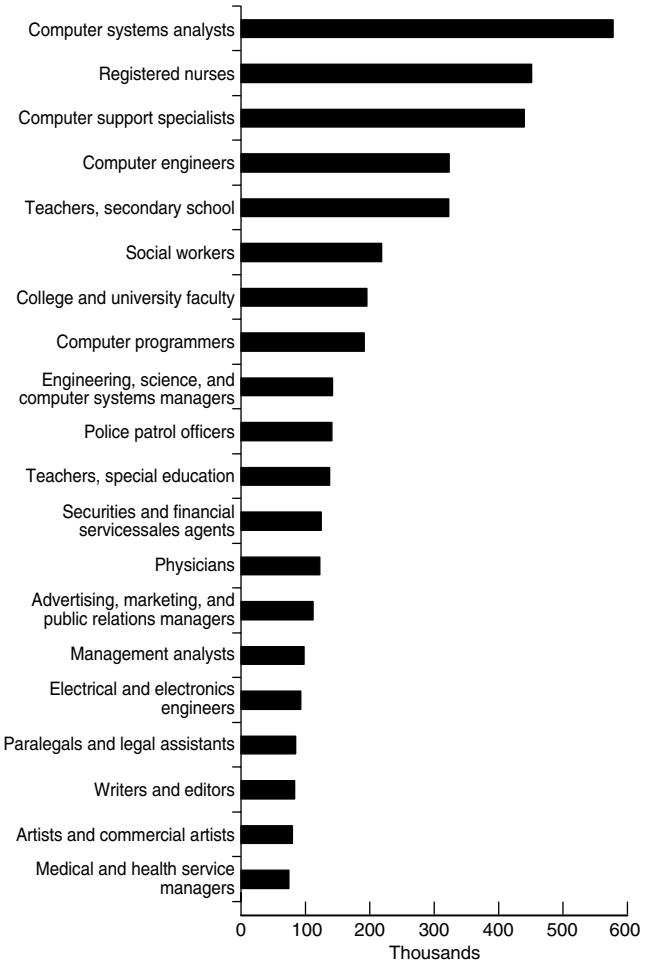


Chart 8. **Occupations with fast growth and high pay that have the largest numerical growth, projected 1998-2008**



Marketing and sales. Workers in marketing and sales occupations sell goods and services, purchase commodities and property for resale, and stimulate consumer interest. Employment in this group is projected to increase by 15 percent, or 2.3 million, from 1998 to 2008. The services industry division is expected to add the most marketing and sales jobs—719,000—by 2008, followed by an additional 92,000 jobs in the transportation and public utilities industry division.

Operators, fabricators, and laborers. Employment of operators, fabricators, and laborers is expected to increase by 1.8 million workers, or 9.4 percent, from 1998 to 2008. Most new jobs in this group are expected among transportation and material moving machine and vehicle operators; helpers, laborers, and material movers, hand; and hand workers, including assemblers and fabricators, adding 745,000, 626,000, and 290,000 jobs, respectively.

Administrative support, including clerical. The number of workers in administrative support occupations, including clerical is projected to increase by 9 percent from 1998 to 2008, adding 2.2 million new jobs. With 24.5 million workers, this is the largest major occupational group. Workers perform a wide variety of administrative tasks necessary to keep organizations functioning efficiently. Due mostly to technological change, several large occupations within this group—for example,

Chart 9. **Occupations projected to grow fastest, 1998-2008**

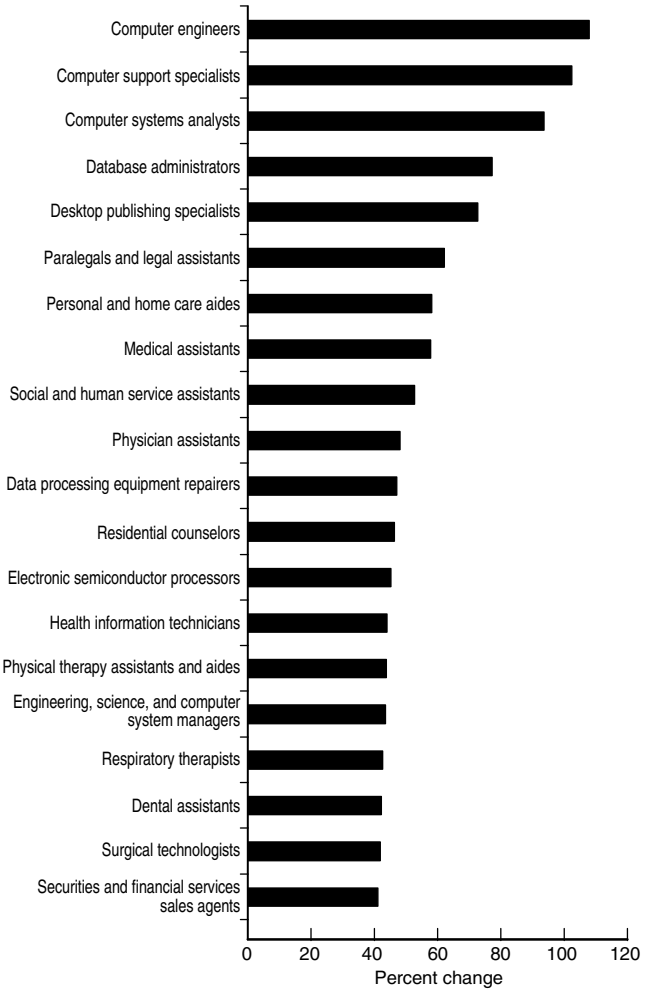
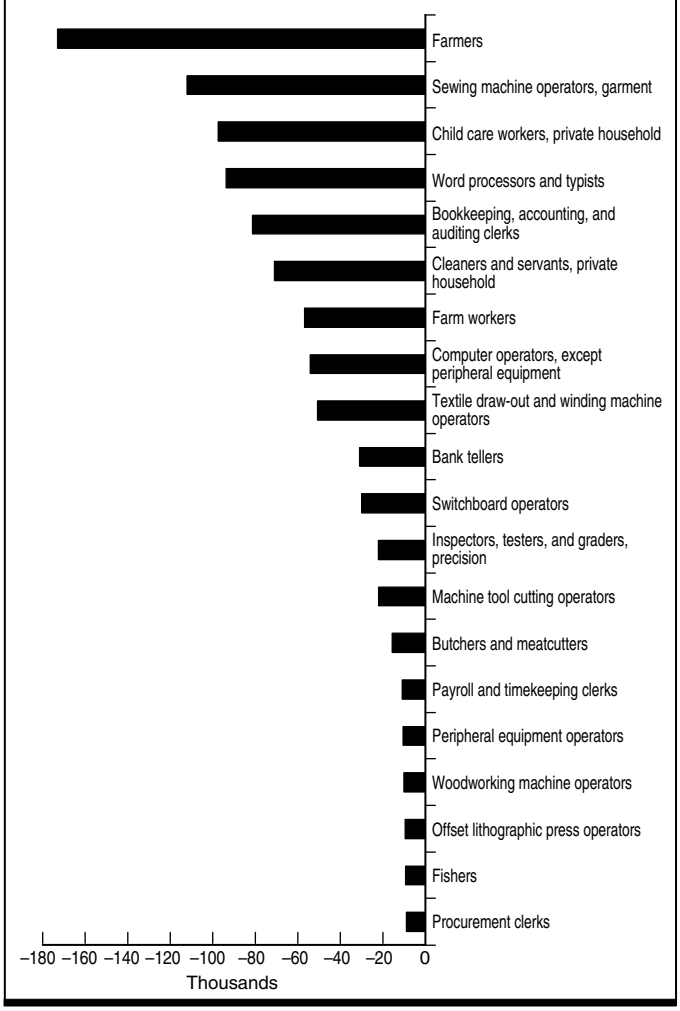


Chart 10. **Occupations with the largest numercial decrease in employment, projected 1998-2008**



bookkeeping, accounting, and auditing clerks—are expected to decline. However, other occupations less affected by technological change are expected to increase. These occupations include teacher assistants, adding 375,000 jobs; office and administrative support supervisors and managers, adding 313,000 jobs; receptionists and information clerks, adding 305,000 jobs; and adjusters, investigators, and collectors, adding 302,000 jobs.

Precision production, craft, and repair. Employment in precision production, craft, and repair occupations is projected to grow 8 percent, creating almost 1.3 million new jobs, over the 1998-2008 period. Mechanics, installers, and repairers are expected to add 588,000 new jobs by 2008; construction trades workers are expected to add 390,000 new jobs; and blue-collar worker supervisors are expected to add 196,000 new jobs.

Agriculture, forestry, fishing, and related. Agriculture, forestry, fishing, and related occupations are projected to grow only by only 2 percent, adding 71,000 new jobs. Workers in these occupations cultivate plants, breed and raise livestock, and catch animals. Within this major group, job losses are expected for farmers and farm workers. In contrast, landscaping, groundskeeping, nursery, greenhouse, and lawn service occupations are expected to add 262,000 new jobs by 2008.

The 20 occupations listed in chart 8 are among those projected to grow fast and produce large numbers of new jobs, in addition to having higher than average earnings. Half of these occupations are involved with computer technology, health care, and education. Systems analysts top this list, adding over 577,000 jobs between 1998 and 2008, reflecting high demand for computer services. Among other computer-related occupations, computer support specialists and computer engineers are expected to add 439,000 and 323,000 new jobs, respectively. Similarly, strong demand for health care services will fuel growth among registered nurses, creating 451,000 new jobs. Among education-related occupations, secondary school teachers head the list, adding 322,000 jobs.

Computer-related jobs are expected to grow the fastest over the projection period (chart 9). In fact, these jobs make up the four fastest growing occupations in the economy. Computer engineers, computer support specialists, computer systems analysts, and database administrators are expected to increase by 108, 102, 94, and 77 percent, respectively. Many other occupations projected to grow the fastest are in health care.

Table 1 lists occupations projected to grow the fastest and to generate the largest number of new jobs over the 1998-2008 period, by level of education and training.

Declining occupational employment stems from declining industry employment, technological advances, organizational changes, and other factors. For example, increased productivity and farm consolidations are expected to result in a decline of 173,000 farmers over the 1998-2008 period (chart 10). Office automation and the increased use of word processing equipment by professionals and managerial employees will

Chart 11. **Job openings due to growth and replacement needs by major occupational group, projected 1998-2008**

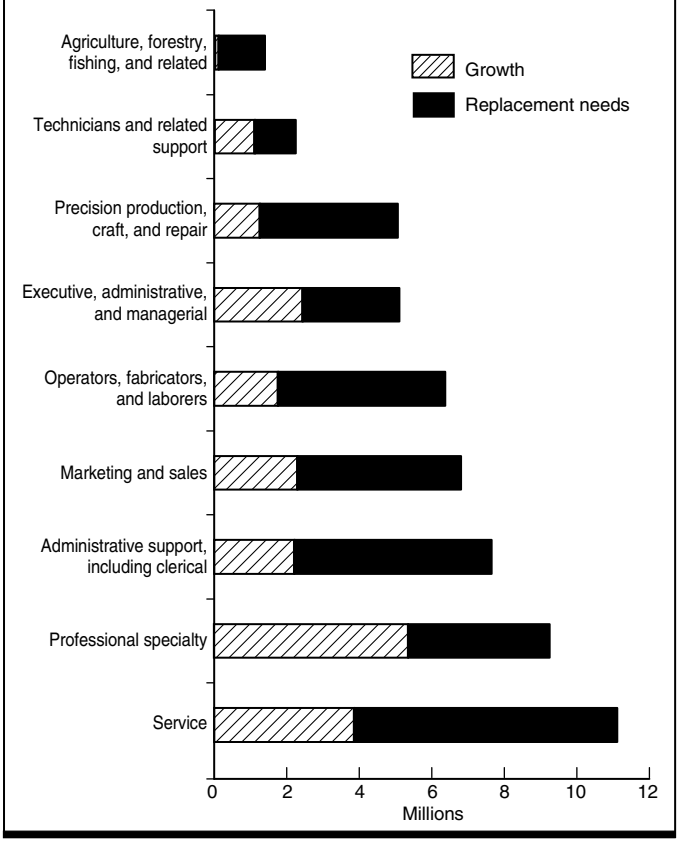
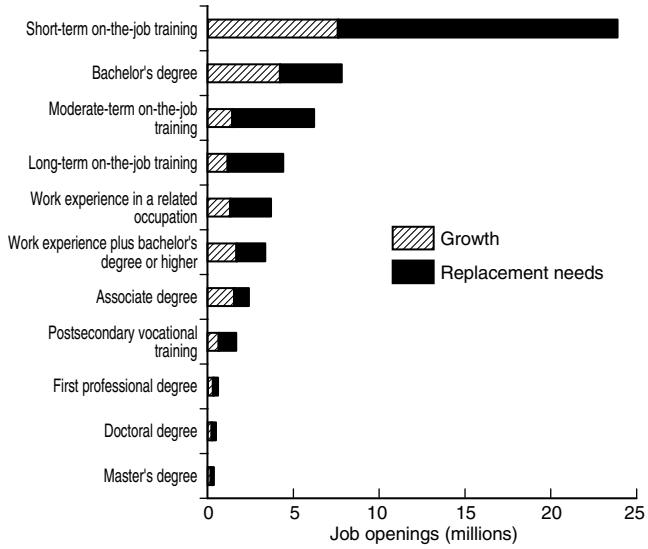


Chart 12. **Job openings due to growth and replacement needs by most significant source of education and training, projected 1998-2008**



lead to a decline among word processors and typists. Examples of occupations projected to lose jobs along with declining employment in the industries in which they are concentrated include farm workers; sewing machine operators, garment; and child-care workers, private household.

Total Job Openings

Job openings stem from both employment growth and replacement needs (chart 11). Replacement needs arise as workers leave occupations. Some transfer to other occupations while others retire, return to school, or quit to assume household responsibilities. Replacement needs are projected to account for 63 percent of the approximately 55 million job openings between 1998 and 2008. Thus, even occupations with slower than average growth or little or no change in employment may still offer many job openings.

Professional specialty occupations are projected to grow faster and add more jobs than any major occupational group, with 5.3 million new jobs by 2008. Two-thirds of this job growth is expected among teachers, librarians, and counselors; computer, mathematical, and operations research occupations; and health assessment and treating occupations. With 3.9 million job openings due to replacement needs, professional specialty occupations comprise the only major group projected to generate more openings from job growth than from replacement needs.

Due to high replacement needs, service occupations are projected to have the largest number of total job openings, 11.1 million. A large number of replacements are expected to arise as young workers leave food preparation and service occupations. Replacement needs generally are greatest in the largest occupations and in those with relatively low pay or limited training requirements.

Office automation will significantly affect many individual administrative and clerical support occupations. Overall, these occupations are projected to grow more slowly than the average, while some are projected to decline. Administrative support, including clerical occupations, are projected to create 7.7 million job openings over the 1998-2008 period, ranking third behind service and professional specialty occupations.

Precision production, craft, and repair occupations and operators, fabricators, and laborers are projected to grow more slowly than the average for all occupations through 2008, due mostly to advances in technology and changes in production methods. Replacement needs are projected to account for almost three-fourths of all the job openings in these groups.

Employment in occupations requiring an associate degree is projected to increase 31 percent, faster than any other occupational group categorized by education and training. However, this category only ranks seventh among the 11 education and training categories in terms of total job openings. The largest number of job openings will be among occupations requiring short-term on-the-job training, a bachelor's degree, and moderate-term on-the-job training (chart 12).

Almost two-thirds of the projected job openings over the 1998-2008 period will be in occupations that require on-the-job training, due mostly to replacement needs. These jobs will account for 34.5 million of the projected 55 million total job openings through 2008. However, many of these jobs typically offer low pay and benefits; this is particularly true of jobs requiring only short-term on-the-job training, which account for 24 million job openings, far more than any other occupational group.

Jobs requiring at least a bachelor's degree will account for about 12.7 million job openings through 2008. Most of these openings will result from job growth and usually offer higher pay and benefits.

Table 1. Fastest growing occupations and occupations projected to have the largest numerical increase in employment between 1998 and 2008 by level of education and training

Fastest growing occupations	Education/training category	Occupations having the largest numerical increase in employment
	First-professional degree	
Veterinarians		Physicians
Chiropractors		Lawyers
Physicians		Clergy
Lawyers		Veterinarians
Clergy		Pharmacists
	Doctoral degree	
Biological scientists		College and university faculty
Medical scientists		Biological scientists
College and university faculty		Medical scientists
Physicists and astronomers		Physicists and astronomers
	Master's degree	
Speech-language pathologists and audiologists		Counselors
Physical therapists		Physical therapists
Counselors		Speech-language pathologists and audiologists
Urban and regional planners		Psychologists
Archivists, curators, and conservators		Librarians
	Work experience plus bachelor's or higher degree	
Engineering, science, and computer systems managers		General managers and top executives
Medical and health services managers		Engineering, science, and computer systems managers
Management analysts		Advertising, marketing, and public relations managers
Artists and commercial artists		Management analysts
Advertising, marketing, and public relations managers		Financial managers
	Bachelor's degree	
Computer engineers		Computer systems analysts
Computer systems analysts		Computer engineers
Database administrators		Teachers, secondary school
Physicians assistants		Social workers
Residential counselors		Teachers, elementary school
	Associate degree	
Computer support specialists		Registered nurses
Paralegals and legal assistants		Computer support specialists
Health information technicians		Paralegals and legal assistants
Physical therapy assistants and aides		Dental hygienists
Respiratory therapists		Electrical and electronic technicians and technologists
	Postsecondary vocational training	
Data processing equipment repairers		Licensed practical nurses
Surgical technologists		Automotive mechanics
Central office and PBX installers and repairers		Hairstylists and cosmetologists
Emergency medical technicians		Emergency medical technicians
Manicurists		Data processing equipment repairers
	Work experience in a related occupation	
Private detectives and investigators		Office and administrative support supervisors
Detectives and criminal investigators		Marketing and sales worker supervisors
Instructors, adult (nonvocational) education		Blue-collar worker supervisors
Lawn service managers		Food service and lodging managers
Office and administrative support supervisors		Teachers and instructors, vocational education and training
	Long-term on-the-job training (more than 12 months)	
Desktop publishing specialists		Correction officers
Correctional officers		Cooks, restaurant
Sheriffs and deputy sheriffs		Police patrol officers
Police patrol officers		Maintenance repairers, general utility
Telephone and cable TV line installers		Carpenters
	Moderate-term on-the-job training (1 to 12 months)	
Medical assistants		Medical assistants
Social and human services assistants		Social and human services assistants
Electronic semiconductor processors		Instructors and coaches, sports and physical training
Dental assistants		Dental assistants
Models, demonstrators, and product promoters		Packaging and filling machine operators
	Short-term on-the-job training (up to 1 month)	
Personal care and home health aides		Retail salespersons
Bill and account collectors		Cashiers
Ambulance drivers and attendants, except emergency medical technicians		Truck drivers, except driver/sales workers
Adjustment clerks		Office clerks, general
Teacher assistants		Personal care and home health aides